UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/072,412	05/04/1998	STEPHEN R. SCHWARTZ	15381	6519

7590 07/14/2004

KENYON & KENYON
333 WEST SAN CARLOS STREET
SUITE 600
SAN JOSE, CA 95110

EXAMINER	
PENDLETON, BRIAN T	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 07/14/2004

37

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/072,412	Applicant(s) SCHWARTZ, STEPHEN R.	
	Examiner Brian T. Pendleton	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,13-15 and 28-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,28-32 and 36-41* is/are rejected.

7)☒ Claim(s) *33-35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/16/04 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant asserts that Bartlett does not suggest assembling first and second filter elements and constructing an equalizer for a microphone by arranging the first and second filter elements to compensate for first and second level differences in sounds as picked up by the microphone and reference sounds. Applicant further asserts that Murayama does not disclose those features. However, the rejection is based on the combination of the references and the obviousness to one of ordinary skill in the art. The figures in Bartlett show the spectral difference between a close miked instrument and its reference sounds. The curve represented the difference plotted over a plurality of discrete frequency ranges, interpreted broadly. The combination of the references is based on one of ordinary skill in the audio art realizing that over the discrete frequency ranges, an equalizer can be used to compensate for the difference is level. It was well known at the time of invention that equalizers "equalize" or compensate for the difference in level between an idea sound and the actual sound. Equalizers were assembled using a plurality of filter elements. Therefore, one of ordinary skill in the art would have constructed first and second filter elements to compensate for the differences between closely miked sounds and reference sounds. This suggested is laid forth without relying on Murayama. The apparatus of Murayama is used to split a signal into N-

frequency bands and adjusting the gain in each band, thus it was advantageous to use it to compensate for the difference plotted in the figures of Bartlett. One of ordinary skill in the art would have known that the circuitry of Murayama could be manipulated to center upon a certain frequency band (where a first difference between the closely miked and reference sounds lies) and use the gain feature accordingly. The same could be done for a second difference at a different frequency band using a different center frequency. As a result, Murayama can be constructed as the equalizer claimed by the Applicant.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5, 13-15 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett in view of Murayama et al. Bartlett discloses a method for altering the sound of a close miked acoustic instrument (e.g. guitar, piano) to make it sound more natural. The method consists of playing sounds from the instrument when said instrument is closely miked (figure 2) and comparing the spectra of the picked up sound to reference sounds. The reference sounds are the sounds generated by the instrument and heard 1 meter away. These sounds were determined to have well-balanced timbre. See figure 1. The difference between the closely miked and reference sounds are shown in figure 4 (and figures 5-15 for various microphone positions). Therefore, differences in level over the audible frequency range were determined. As taught in section 2, to make the instrument sound "well balanced" when miked up close, the instrument can be equalized. Also in section 5, it was suggested that the inverse of the spectral curve shown

in the figures is the equalization required to make a close-mike instrument sound as it does at the reference point (1 meter away). Thus, steps 1 through 6 are taught by Bartlett: a selected location proximate to an acoustical generator is determined and a microphone is placed at the location (figure 2), sounds are generated by the acoustical generator and picked up by the microphone, reference sounds of the acoustic generator are played (figure 1) and the sounds picked up by the microphone in figure 2 is compared to the reference sounds (figure 4). Differences in level over the audible frequency range was determined for the sound picked up by the microphone in figure 2 and the reference sounds (also in figure 4). Bartlett does not explicitly state assembling a first filter element for compensating for a first difference in the sounds in a first discrete frequency range and assembling a second filter element for compensating for a second difference in the sounds in a second discrete frequency range and constructing an equalizer using the first and second filter elements, per claim 1. However, those method steps were obvious to one of ordinary skill in the art at the time of invention according to the following explanation.

Bartlett suggests that the inverse of the spectral curves shown in figures 4-15 is the equalization needed to make a closely miked instrument sound like the reference sounds. For one of ordinary skill in the art, it was well known that the inverse of the curves can be realized by using an equalizer. An equalizer adjusts the gains in discrete frequency ranges so that an output signal can be shaped according to a specific spectral function. As evidence, see Murayama et al, columns 1 and 2. Murayama et al state that for adjusting the sound quality of an audio signal depending on the playback sound field, a graphic equalizer circuit for splitting the frequency spectrum into plural bands and for changing the gain in each of the split bands is used

extensively. Accordingly, with this teaching, which demonstrated a well known practice in the art, one would have been motivated to use a graphic equalizer to correct for the differences in the closely miked sounds and reference sounds. Although Bartlett proposed a low pass filter with a cut-off frequency around 300 Hz as a compensator in figure 16, that was just one example. As one of ordinary skill in the art could see, figure 16 only compensates for the sound below 300 Hz. The sound above that cut-off level still is not compensated for. An inverse curve is not used, thereby yielding some lingering differences in the mid-range and treble ranges. It would have been obvious at the time of invention to also include those frequency ranges in the compensation process to yield the sound closest to the reference sound. Naturally, one of ordinary skill would not only compensate in one frequency range. For instance, a piano contains a plurality of keys, to compensate for only one of those keys would not produce the reference sound or any sound close to it. Therefore, to have a true reference sound produced from the closely miked instrument, more than one frequency range had to be considered. As shown in Murayama et al, figures 2 and 3, the graphic equalizer has a plurality of frequency ranges, some of which are discrete from one another (e.g. ranges centered around f_1 and f_3). The bandpass filters 31A, 31B, etc. determine the center frequency and the voltage-current converters, elements 32 and 33, determine the gain. Applying the teachings of Murayama et al, per equalizers and sound adjustment, to the Bartlett reference, it would have been obvious to one of ordinary skill in the art at the time of invention to use the graphic equalizer of Murayama et al, which disclose first and second filter elements with first and second discrete frequency ranges, to achieve the inverse spectral curve of the differences between the sounds of the closely miked acoustical generator and the reference sounds. Claim 1 is met. As to claim 2, Bartlett suggests a

plurality of test positions of the closely miked guitar. Without undue experimentation, one of ordinary skill in the art would have attached the microphone to the instrument, as was done for acoustical performances at the time of invention. Regarding claims 3 and 4, section 3 of Bartlett discloses that musicians and audio engineers were asked to describe the differences between the closely miked instrument and the reference sound for the test positions. Their comments are shown next to the difference curves in the figures. Thus, it was taught that the naked ear could be used to compare the sounds picked up by the microphone and the reference sounds. As a result, the listener could then manipulate a graphic equalizer to make up for the difference in sounds. Per claim 5, Bartlett runs his experiment with different embodiments of an acoustic guitar. An inverse equalizer could be constructed with any of the difference curves for the different embodiments of the acoustic guitar. As to claim 13, Bartlett discloses a microphone element placed proximate to an acoustical generator and Murayama et al teach an equalizer with at least first and second filter elements to compensate for the first and second differences in level between the miked sounds and reference sounds. Per claim 14, as explained above, it was obvious to attach the microphone to the acoustical generator. Regarding claim 15, it was obvious to use digital components at the time of invention as they were more reliable and faster. Per claims 28-30, variable controls exist in the form of the voltage current converters 32 and 33. As to claims 31 and 32, figure 2 of Murayama et al demonstrates that the graphic equalizer has a limited range of gain values. Regarding claims 36-38, it was obvious that the gain adjustment of one (first) filter element would be different from the gain adjustment of the other (second) filter element since the level differences vary in the signal spectrum as shown in the figures of Bartlett.

As to claims 39-41, Q parameters differ among the first and second filter elements in the apparatus of Murayama.

Allowable Subject Matter

3. Claims 33-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

btp

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER